Networks of perfect tensors via symplectic geometry over finite fields

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Abstract

So-called perfect tensors have made an appearance recently in bottom-up toy models of the AdS/CFT correspondence that place emphasis on reproducing the expected entanglement properties of the boundary state and their reflection in the bulk geometry. I will review some of these constructions, and try to argue that this class of tensors does not appear in an ad hoc way. Rather, they can be understood as arising naturally in the context of analogues of quantization over finite fields or rings. At the end, I hope to comment on a few ways the p-adics might appear naturally in such a setting.